



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931**

July 31, 2000

Mr. John P. Cowan, Vice President
Nuclear Operations
Florida Power Corporation
ATTN: Manager Nuclear Licensing (NA1B)
Crystal River Energy Complex
15760 West Power Line Street
Crystal River, FL 34428-6708

SUBJECT: CRYSTAL RIVER 3 - NRC INSPECTION REPORT 50-302/2000-02

Dear Mr. Cowan:

On July 1, 2000, the NRC completed an inspection at your Crystal River 3 facility. The enclosed report presents the results of that inspection, which were discussed on June 29, 2000, with Mr. J. Holden and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

The NRC identified two issues that were evaluated under the significance determination process and were determined to be of very low safety significance (green). The issues have been entered into your corrective action program and are discussed in the summary of findings and in the body of the attached inspection report. One of the issues was determined to involve a violation of NRC requirements. However, the violation was not cited due to the very low safety significance and because it has been entered into your corrective action program. If you contest the non-cited violation, you should provide a basis for your denial to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Crystal River facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Leonard D. Wert, Chief
Projects Branch 3
Division of Reactor Projects

Docket No. 50-302
License No. DPR-72

Enclosure: NRC Inspection Report 50-302/2000-02
Attachment 1: NRC's Revised Reactor Oversight Process
Attachment 2: Florida Power Corporation Presentation at June 26, 2000 Meeting

cc w/encl:

Daniel M. Roderick, Director
Nuclear Plant Operations (PA4A)
Florida Power Corporation
Crystal River Energy Complex
Electronic Mail Distribution

Sherry L. Bernhoft, Director
Nuclear Regulatory Affairs (NA2H)
Florida Power Corporation
Crystal River Energy Complex
Electronic Mail Distribution

Gregory H. Halnon, Director
Quality Programs (SA2C)
Florida Power Corporation
Crystal River Energy Complex
Electronic Mail Distribution

R. Alexander Glenn
Corporate Counsel MAC - BT15A
Florida Power Corporation
Electronic Mail Distribution

(cc w/encl cont'd - See page 3)

FPC

3

(cc w/encl cont'd)
Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, FL 32304

William A. Passetti
Bureau of Radiation Control
Department of Health
Electronic Mail Distribution

Joe Myers, Director
Division of Emergency Preparedness
Department of Community Affairs
Electronic Mail Distribution

Chairman
Board of County Commissioners
Citrus County
110 N. Apopka Avenue
Inverness, FL 36250

Michael A. Schoppman
Framatome Technologies
Electronic Mail Distribution

FPC

4

Distribution w/encl:
L. Wiens, NRR
PUBLIC

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRS	RII:DRS
SIGNATURE	SNinh	SStewart	DLanyi	DLanyi for	SSanchez	JBlake	LWert for
NAME	SNinh	SStewart	DLanyi	MFranovich	SSanchez	JBlake	GKuzo
DATE	7/31/00	7/31/00	7/31/00	7/31/00	7/31/99	7/28/00	7/28/00
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY

DOCUMENT NAME: C:\2000-02.wpd

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No: 50-302
License No: DPR-72

Report No: 05-302/2000-02

Licensee: Florida Power Corporation (FPC)

Facility: Crystal River Unit 3

Location: 15760 West Power Line Street
Crystal River, FL 34428-6708

Dates: April 2, 2000 - July 1, 2000

Inspectors: S. Stewart, Senior Resident Inspector
D. Lanyi, Acting Senior Resident Inspector
M. Franovich, Acting Senior Resident Inspector
S. Sanchez, Resident Inspector
J. Blake, Senior Project Manager (Region II)
G. Kuzo, Senior Radiation Specialist (Region II)

Approved by: L. Wert, Chief
Projects Branch 3
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000302-00-02, on 04/02-07/01/2000; Florida Power Corporation; Crystal River Unit 3. Findings in: Access Control to Radiologically Significant Areas, ALARA Planning and Controls. Resident Operations Report.

This inspection was conducted by the resident inspectors, a regional senior radiation specialist, and a regional senior project manager. The inspection identified two green issues, one of which was a non-cited violation. The significance of the issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process (see Attachment 1; NRC's Revised Reactor Oversight Process).

Cornerstone: Occupational Radiation Safety

- Green. On October 23, 1999, Health Physics (HP) technicians providing high radiation area job coverage failed to provide positive controls in accordance with Improved Technical Specification 5.8.1.c, for two contract workers performing leadscrew cleaning and inspection activities under Radiation Work Permit 99-0146. The two workers received cumulative doses of 330 and 550 millirem which exceeded the 250 millirem (mrem) cumulative dose expected for the task. Since there was no substantial potential for overexposure to occur based on the expected job duration (1 to 2 hours), and the maximum general area dose rates (300 mrem per hour), this finding was determined to be of very low safety significance. This finding was identified as a Non-Cited Violation (NCV) for failure to provide continuous health physics coverage required by Improved Technical Specification 5.8.1.c for work conducted in a High Radiation Area (Section 2OS1.2).
- Green. Collective dose expenditures for three high dose rate/dose evolutions conducted during the October 1999 Refueling Outage exceeded their original dose expenditure estimates by more than 50 percent. For steam generator tube maintenance activities, actual dose expenditures exceeded both the original and revised dose projections by more than 50 percent. For eddy current testing and scaffolding activities, revisions to the dose estimates were not conducted and documented until after the original dose expenditure estimates were exceeded. Differences between the original and revised estimates resulted from elevated dose rates, expanded job scope, and/or worker performance. Since the tasks did not result in any individual doses exceeding 10 CFR Part 20, Subpart C, Occupational Dose Limits, this finding was determined to be of very low safety significance. (Section 2OS2).

Report Details

Summary of Plant Status:

Unit 3 operated at essentially full power for the entire period with the exception of a planned maintenance outage with the unit being placed in hot shutdown to repair a leaking seal on a decay heat valve, DHV-3, from April 27 to April 29, 2000.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity (Reactor - R)

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors verified that the Emergency Diesel Generators (EDGs) and the Decay Heat Removal (DHR) systems would remain functional during the high winds and potential flooding associated with a hurricane or tropical storm affecting the site. The inspectors reviewed the Updated Final Safety Analysis Report and other documents, including emergency management procedures EM-202, Duties of the Emergency Coordinator and EM-220, Violent Weather, and flow diagrams FD-302-641, DHR and FD-302-282, EDG Compressed Starting Air and Engine Exhaust. The inspectors walked down accessible areas to verify that the systems would remain operable during the worst postulated weather conditions.

b. Issues and Findings

No findings were identified.

1R04 Equipment Alignment

a. Inspection Scope

The inspectors conducted partial alignment walkdowns of the safety related systems listed below to evaluate the operability of the redundant trains or backup systems while the other trains were inoperable or out of service. The walkdowns included reviews of Operating Procedures OP-402, Makeup and Purification System, OP-404, DHR System, and OP-707, Operation of the Engineered Safeguards EDGs, to determine correct system lineups, and verification of critical components to identify any discrepancies which could affect operability of the redundant train or backup system.

- A Emergency Diesel Generator
- A Makeup and Purification System
- B Decay Heat Closed Cycle Cooling System

b. Issues and Findings

No findings were identified.

1R05 Fire Protection - Routine Inspection

a. Inspection Scope

The inspectors conducted tours of the areas listed below that are important to reactor safety to evaluate conditions related to licensee control of transient combustibles and ignition sources; the material condition, operational status, and operational lineup of fire protection systems, equipment and features; and the fire barriers used to prevent fire damage or fire propagation. The Fire Protection Plan was reviewed extensively during these inspections.

- Engineering Safeguards 480 Volt Switchgear Rooms
- Emergency Feedwater Initiation and Control Rooms
- A Emergency Diesel Generator Rooms
- Emergency Feedwater Pumps 1 and 2 Area
- Control Complex Heating, Ventilation, and Cooling Equipment Room
- Control Rod Drive and Communications Room
- Safety Related Battery Rooms

b. Issues and Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the maintenance and performance inspections of the service water (SWHE) and decay heat removal (DHHE) heat exchangers. The review included observance of the inspection and cleaning of the seawater side of the 1B SWHE, and review of the documentation for past cycles of inspection and cleaning for the four SWHEs and the two DHHEs.

The review also included a discussion of the licensee's tactics for control of marine life such as oysters, barnacles, and clams, and a walking tour of the inlet and outlet connections for the introduction of and the neutralization of the Clamtrol® biocide treatment used for biotic control. The inspectors also reviewed the chemical control data plots for the past year, for the nuclear services closed cycle cooling and the decay heat A and B closed cycle cooling systems cooled by the SWHE and DHHE heat exchangers.

After requesting information about previous testing of the heat exchangers, the inspectors were informed that the heat exchangers had been tested during the mid 1990s, and that those tests provided the bases for the heat exchanger cleaning process and the established plugging limits. Information discussed included how the testing was

conducted to determine the ultimate heat sink temperature limits, the heat exchanger plugging limits, and how the currently-used wire-brush method for cleaning the heat exchangers was selected. The inspector also reviewed precursor card, PC 3-C00-1671, which the licensee generated to document the need to collect previous test data in order to generate bases documentation for the inspection and maintenance program.

In the area of Identification and Resolution of Problems, the inspectors reviewed the licensee's recent self-assessment report, "Heat Sink Performance Self-Assessment Final Report CRSA-2000-24" dated May 11, 2000, and the proposed resolution for selected problems identified by this self-assessment.

b. Issues and Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

The inspectors observed and assessed simulator evaluations for actions taken during a fire, including operations from the remote shutdown panel. The inspector assessed the following items:

- Clarity and formality of communication.
- Ability to take timely action to safely control the unit.
- Prioritization, interpretation, and verification of alarms.
- Correct use and implementation of procedures, including the alarm response procedures by the crew.
- Control board operation and manipulation, including high-risk operator actions.
- Oversight and direction provided by the shift supervisor, including ability to identify and implement appropriate technical specifications actions such as reporting and emergency plan actions and notifications.

b. Issues and Findings

No findings were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors sampled portions of the systems listed below due to performance problems and assessed the effectiveness of maintenance efforts on these systems. Reviews focused on maintenance rule scoping in accordance with 10 CFR 50.65 and characterization of failed systems or components. Additionally, the safety significance classifications, the (a)(1) or (a)(2) classifications, and the appropriateness of performance criteria for systems or components classified as (a)(2) or goals and corrective actions for those classified as (a)(1) were also reviewed. Procedures reviewed included compliance procedures CP-153A, Maintenance Rule Implementation

and CP-153B, Monitoring the Performance of Structures, Systems, and Components Under the Maintenance Rule.

- Decay Heat Removal System
- Control Rod System
- Control Complex Chilled Water System
- Emergency Diesel Generator System
- Pressurizer Heater System
- Nuclear Services and Decay Heat Seawater System

b. Issues and Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the maintenance tasks, including the work requests (WR) and surveillance procedures (SPs) listed below, to evaluate the effectiveness of the risk assessments performed before maintenance activities were conducted. The inspectors verified that the licensee was managing overall risk appropriately, and that, upon identification of an unplanned situation, resulting emergent work activities were properly planned and controlled. The inspectors also confirmed that problems with maintenance risk assessments and emergent work were identified and resolved.

- SP-354B Monthly Functional Test of Emergency Diesel Generator 1B
- SP-907A Monthly Functional Test of 4160 V Engineered Safeguards Bus A Undervoltage and Degraded Grid Relaying
- Various WRs B Emergency Core Cooling System Outage Work
- Various WRs Decay Heat Valve DHV-3 temporary valve repair
- WR 0365949 Replace Decay Heat Valve DHV-37

b. Issues and Findings

No findings were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions and Events

a. Inspection Scope

The inspectors reviewed personnel performance during the shutdown and startup of the unit during the period of April 27 to April 29. The inspectors observed operator response to routine and unexpected alarms and conditions, determined if operator responses were in accordance with the response required by procedures and training, and confirmed that personnel performance deficiencies were captured in the licensee's corrective action program.

b. Issues and Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed all open operability evaluations, and determined that only three affected risk significant mitigating systems:

- Diesel Fuel Pump, DFP-1B, low flow
- Decay Heat Valve, DHV-37, A pump suction leakage, and
- Decay Heat Valve, DHV-3, hot leg dropdown line isolation valve seal leakage.

The inspectors reviewed precursor cards PC 00-1081, PC 00-1570, Operations Required Action Logs, Document Numbers 666264 and 667864, and Operability Condition Reports 00-0001 and 00-0002, to assess the technical adequacy of the evaluations, and whether continued system operability was warranted. Additionally, the inspectors ensured that other existing degraded conditions were considered by the licensee when completing these evaluations.

b. Issues and Findings

No findings were identified.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors evaluated all listed operator workarounds for risk significance and their cumulative effect on safety. The inspectors also reviewed operations instruction OI-19, Operator Workarounds. One operator workaround, binding of the boric acid storage tank level indicator, was evaluated for potential affects on the ability of mitigating systems to function. Also, the inspectors noted that Operations was continuously maintaining pressurizer spray to minimize the Boron concentration differential between the pressurizer and the rest of the reactor coolant system. This also would reduce the cycling of the spray valve. Both of these concerns existed due to the increased seat leakage noted from RCV-8, a pressurizer safety valve. Both of the workarounds were reviewed to determine if the functional capability of the systems or human reliability in responding to an initiating event was affected. Also, the inspector evaluated the effect on the operator's ability to implement abnormal or emergency procedures, and if operator workaround problems were captured in the licensee's corrective action program.

b. Issues and Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed post maintenance test procedures and test activities for selected risk significant mitigating systems to assess the following: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; (8) and that equipment was returned to the status required to perform its safety function.

- WR 364334 Engineered Safeguards Relay Contact Replacement
- WR 363474 Decay Heat Valves 7, 12, and 40 Retest
- WR 365415 Control Rod Drive 10 Breaker Replacement
- WR 362239 Decay Heat Valves 8 and 91 Retest
- WR 365949 Replace Decay Heat Valve DHV-37
- WR 366246 Battery Charger DPBC-1A

b. Issues and Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed surveillance procedures (SPs) and/or reviewed test data of selected risk-significant systems or components listed below, to assess whether they met Technical Specifications, Updated Final Safety Analysis Report, and licensee procedure requirements. Also, the inspectors verified that the testing effectively demonstrated that the systems were operationally ready and capable of performing their intended safety functions.

- SP-907B Monthly Functional Test of 4160 Volt Engineered Safeguards Bus B Undervoltage and Degraded Grid Relaying
- SP-354B Monthly Functional Test of the Emergency Diesel Generator 1B
- SP-108 Reactor Trip Module and Control Rod Drive Trip Functional Test
- SP-109 Reactor Protection System Manual Reactor Trip Functional Test
- SP-351 Nuclear Services Flow Path Operability
- SP-340E Decay Heat Pump (DHP-1B), Building Spray Pump (BSP-1B), and Valve Surveillance
- SP-120A Anticipated Transient Without Scram - Diverse Scram System Functional Test

b. Issues and Findings

No findings were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed temporary modification TM-00-00-00-06 for the decay heat valve DHV-3 temporary gasket repair. The inspectors evaluated the modification and associated 10 CFR 50.59 screening against the system design basis documentation, and verified that the modifications did not affect system operability or availability. Additionally, they verified that the installation was consistent with the modification documents and was conducted with adequate configuration control.

b. Issues and Findings

No findings were identified.

2. **RADIATION SAFETY**

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control to Radiologically Significant Areas

.1 Review of Current Access Controls

a. Inspection Scope

The inspectors reviewed radiological controls and verified their implementation for the following maintenance and operational activities:

- Radiation Work Permit (RWP) 00-0019, Revision 0 (Rev. 0), Change Makeup & Purification Filters
- RWP 00-0053, Rev. 0, Spent Fuel Movement Support Activities
- RWP 00-0056, Rev. 0, Dive Operations/Re-rack Preparation Work

The review included administrative and engineering controls for high radiation, locked-high radiation, and very high radiation areas. The inspectors directly observed pre-job briefings, work-in-progress, and Health Physics (HP) technician job coverage. Area and personnel radiation surveys were verified. Licensee activities were reviewed against Updated Final Safety Analysis Report (UFSAR), Improved Technical Specification (ITS), and 10 CFR Part 20 requirements.

b. Issues and Findings

No findings were identified.

.2 Problem Identification and Resolution Associated With Occupational Radiation Safety Issues

a. Inspection Scope

The inspectors reviewed details and status of selected quality issues regarding health physics personnel experience and staffing levels, control of radioactive material and contamination, radiological surveys, personnel contamination events, radioactive material receipt, and release of radioactive material to the sanitary sewer system. The reviewed issues were identified between October 1, 1999, and June 1, 2000, and were documented in the licensee's corrective action system. In addition, the inspectors reviewed Precursor Card (PC) 3-C99-3874 documented in response to an October 23, 1999, Performance Indicator (PI) event involving a worker who received an unanticipated deep dose exposure in excess of 100 millirem (mrem). The specific event details, licensee evaluations, and associated corrective actions, as necessary, were evaluated against ITS; 10 CFR Parts 19, 20, 50, and 71; and previous license commitments.

b. Issues and Findings

Licensee actions for quality issues identified for radioactive materials receipt, radioactive material control, and decontamination activities were prioritized and tracked appropriately.

The reviewed PCs documented several examples of failure to follow procedures and/or failure to have procedures for the control of radioactive and/or contaminated materials. PC 99-4769 issued in February, 2000, documented root cause determination for events where contaminated or radioactive materials were not properly controlled. Further, PCs 00-0030, 00-0199, 00-0062, and 0399 documented specific instances of radioactive or contaminated material improperly controlled or not maintained within specified posted areas. Several identified issues involved radioactive material located or stored on a berm adjacent to the reactor building equipment hatch. Root causes included failure to conduct appropriate surveys and human error. Contributing factors included HP staffing levels and experience, work planning, and poor conditions for long-term storage of materials in the berm area. Planned corrective actions include increased monitoring prior to entering the berm area from the auxiliary building, improved long-term storage capability, procedural revisions, and training of personnel.

In addition, PC 99-4219 identified low concentrations of cobalt-58 in sludge from the onsite sanitary sewer system. The contamination is believed to have resulted from concentrating radioactive materials during laundering of turbine workers' coveralls having minute amounts of radioactive contamination less than the established turbine building radiologically controlled area check-point instrumentation detection limits. Corrective actions included treating, processing, and disposing of the contaminated sludge as radioactive waste; reestablishing a sanitary sewer facility monitoring program, and improving evaluation of all nuclear and non-nuclear facilities inputs to the system.

Improved Technical Specification (TS) 5.6.1.1.a, requires that written procedures be established, implemented, and maintained for the activities recommended in Appendix A of Regulatory Guide (RG) 1.33, Revision 2, February 1978. Section 7.e of the RG recommends, in part, procedures for radiation protection surveys. Procedure HPP-202A, Radiological Surveys and Inspections, contains requirements to conduct effective

surveys and includes administrative controls on radioactive material storage. These examples of failure to follow or to have adequate procedures for radiation protection surveys were identified as a violation of ITS 5.6.1.1. Although the identified examples exceeded licensee administrative controls, no occupational or public dose limits were exceeded. The issues were not willful, and the resultant radioactive material control issues had no actual or credible impact on safety primarily because the identified overall contamination levels were extremely low. The inspectors determined that these issues constitute a violation of minor significance and are not subject to formal enforcement action.

PC 3-C99-3874 documented an October 23, 1999, Performance Indicator (PI) issue for an unanticipated deep dose occupational worker exposure in excess of 100 millirem (mrem). While working on CRDM leadscrew cleaning and inspection, two workers received cumulative doses of 330 and 550 millirem which exceeded the 250 mrem cumulative dose expected for the task. Electronic alarming (audible) dosimeters (EADs) having integrated and dose rate set-points of 250 millirem and 5,000 mrem /hour (mrem/hr), respectively, were provided to the workers for the task which was expected to last approximately one hour. Radiological surveys of the work area identified general area dose rates of 100 - 200 mrem/hr, and maximum dose rates of 1000 mrem/hr (contact) and 300 mrem/hr (30 centimeters), and extensive surface contamination of 2000 mrad /hr/100 square centimeters. The workers exited the area after approximately 1.5 hours. At that time, the HP technician providing coverage noted that the workers' EADs were in alarm status with each individual's dosimeter indicating a cumulative dose exceeding the 250 mrem set-point value. The licensee's evaluation determined that placement of the EADs beneath protective clothing, the use of bubble-hoods, and high noise work environment rendered the EAD audible alarms ineffective. The pre-job briefings did not identify the effect of the elevated ambient noise levels on use of the audible EADs, did not cover expected stay-times, nor discussed other industry experiences. Further, the HP technician providing job coverage was assigned a junior HP for job coverage training clothing and as a result of communication errors between the individuals, neither performed adequate time keeping.

The inspectors noted Technical Specification 5.8.1.c specifies that, in part, any individual permitted to enter a high radiation area shall be accompanied by an individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance. The failure of the senior HP technician to provide positive controls for the two contract workers performing leadscrew cleaning and inspection activities in a high radiation area was a violation of Technical Specification 5.8.1.c. Licensee corrective actions included identification of ambient noise levels precluding use of audible dose rate alarms, development of compensatory actions for entry into high radiation areas with high noise levels, review of managements expectations concerning job coverage training during activities where multiple radiological hazards are present, and revision of pre-job checklists and job history files for radiological activities to include environmental conditions and operating experience checkoffs for high risk evolutions.

The inspectors performed a risk significance determination of this issue using the Occupational Radiation Safety Significance Determination Flowchart in accordance with

draft NRC Inspection Manual 0609, "Significance Determination Process". Since there was no substantial potential for overexposure to occur based on the job duration, 1 to 2 hours, and maximum general area dose rates, 300 mrem per hour, this finding was considered to be of very low risk significance (green). This violation of Technical Specification 5.8.1.c is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy (NCV 50-302/2000-02-01, Failure to Provide Positive Controls for Workers in a High Radiation Area as Required by Technical Specification 5.8.1.c). This violation is in the licensee's corrective action program as Precursor Card 3-C99-3874.

2OS2 "As Low As Reasonably Achievable" Program Planning and Controls

a. Inspection Scope

Site-specific trends in collective exposures and source-term data were reviewed and discussed. The licensee's program for estimating and tracking department and job-specific dose expenditures was reviewed. Engineering controls and supervisory oversight used to reduce occupational dose during the October 1999, Refueling Outage (RFO) 11 were evaluated. Licensee "As Low As Reasonably Achievable" Program planning activities; estimated and actual dose expenditures; post-job evaluations; and lessons learned for the following selected RFO 11 high dose-rate and high person-rem exposure activities were reviewed and discussed.

- RWP 99-0078, Eddy Current Examinations
- RWP 99-0079, Once Through Steam Generator (OTSG) Tube Maintenance
- RWP 99-0092, Reactor Head Reassembly
- RWP 99-0131, Assemble/Disassemble Scaffolding/Playpens
- RWP 99-0146, Control Rod Drive Mechanism (CRDM) Removal & Thermal Barrier Activities

The reported collective doses for the above RFO 11 tasks were compared to the original dose estimates. Results of the comparisons were evaluated using the Significance Determination Process (SDP).

b. Issues and Findings

Site collective dose expenditure was approximately 251 person-rem for the 1999 calendar year. For the most recent three year period, i.e., 1997 through 1999, the licensee reported an average collective dose expenditure of approximately 150 person-rem.

Excluding RWP 99-0146, CRDM and Thermal Barrier activities, final dose expenditure results for the reviewed tasks exceeded the original estimates by more than 50 percent. Based on elevated dose rates, the licensee revised the dose expenditure estimate for the reactor head assembly activities prior to exceeding the original estimate. For the three other RWP tasks reviewed, revisions to the estimated dose expenditures were not conducted or were not completed and documented prior to the expended dose exceeding the original estimates. For the OTSG tube maintenance activities, actual dose expenditures exceeded both the original and revised dose projections by more

than 50 percent. For both the eddy current examination and scaffolding activities, revisions to the dose expenditure estimates were not conducted and documented until the original values were met or exceeded. Differences between the original and revised estimates resulted from elevated dose rates, expanded job scope, and/or worker performance. Using the SDP, the inaccurate or untimely dose estimates conducted and documented for the eddy current examinations, scaffolding activities, and OTSG tube maintenance represented a finding of very low safety significance (green), in that, each task involved more than 5 person-rem, actual results exceeded estimated dose projections by more than 50 percent, and the site three-year rolling average collective dose exceeded 135 person-rem. The inaccuracies in RFO 11 dose estimates were placed into, and tracked in the licensee's corrective action system under Precursor Card 3-C99-3722.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verifications

.1 Initiating Events

a. Inspection Scope

The inspectors verified the accuracy of the licensee's report to the NRC for all indicators in this cornerstone. This data included the number of unplanned automatic or manual reactor trips while the reactor was critical (both uncomplicated and with a loss of heat sink), and unplanned power reductions of 20 percent or more which were reported to the NRC. The inspectors reviewed data applicable to four quarters of operation beginning with the second quarter of 1999 and ending the first quarter of 2000. The inspectors reviewed licensee event reports and Operations logs to verify the raw data. Also, monthly operating reports were reviewed to determine the number of reactor critical hours.

b. Issues and Findings

No findings were identified.

.2 Barrier Integrity

a. Inspection Scope

The inspectors verified the accuracy of the performance indicator for reactor coolant system leakage which was reported to the NRC. The inspectors reviewed data applicable to four quarters of operation beginning with the second quarter of 1999 and ending the first quarter of 2000. The inspectors reviewed Operations logs and completed surveillance procedures SP-317, Reactor Coolant System Water Inventory Balance, to ensure the values reported were accurate.

b. Issues and Findings

No findings were identified.

.3 Occupational Radiation Safety

a. Inspection Scope

The inspectors verified the Occupational Exposure Control Effectiveness performance indicator for the Occupational Radiation Safety Cornerstone through June 2, 2000. The inspectors reviewed data reported to the NRC and sampled and evaluated selected Health Physics Program records and applicable Corrective Action Program Condition Reports.

b. Findings

No findings were identified.

40A5 Other

.1 (Closed) Temporary Instruction (TI) 2515/144 Performance Indicator Data Collecting and Reporting Process Review

a. Inspection Scope

The inspector reviewed the licensee's performance indicator data collection and reporting processes to determine whether their processes were consistent with the guidance contained in the Nuclear Energy Institute's (NEI) guideline, NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 0. Indicator definitions, data reporting elements, calculational methods, term definitions, and clarifying notes used by the licensee as specified in procedure CP-217, NRC Revised Oversight Process Performance Indicator Program, were verified by the inspectors for consistency with NEI 99-02 for all performance indicators. This TI is closed.

b. Issues and Findings

No findings were identified.

40A6 Meetings

.1 Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. John Holden and other members of licensee management at the conclusion of the inspection on June 29, 2000. The licensee acknowledged the findings presented. The Region II senior radiation specialist presented the results of his inspection on June 8, 2000, and in a subsequent phone call with Mr. D. Roderick on June 13, 2000. The Region II senior project manager presented the results of the heat sink inspection on June 8, 2000.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Plant Performance Review Meeting

On June 26, 2000, the Region II Division of Reactor Projects Branch Chief conducted the Plant Performance Review (PPR) meeting for the period February 1, 1999 to January 31, 2000. The Division of Reactor Projects Branch Chief discussed the results of the PPR as described in the PPR letter dated March 31, 2000. The licensee presentation at this meeting is provided as Attachment 2.

.3 Revised Reactor Oversight Process Meetings

On June 26, 2000, a meeting with the public and local officials was held to present an overview of the NRC's Revised Reactor Oversight Process.

PARTIAL LIST OF PERSONS CONTACTEDLicensee

M. Annacone, Assistant Plant Director, Operations
 S. Bernhoft, Director, Nuclear Regulatory Affairs
 J. Cowan, Vice President, Nuclear Operations
 R. Davis, Director, Nuclear Operations Training
 R. Grazio, Director, Nuclear Site and Business Support
 C. Gurganus, Assistant Plant Director, Maintenance
 G. Halnon, Director, Nuclear Quality Programs
 J. Holden, Vice President and Director, Site Nuclear Operations
 D. Roderick, Director, Nuclear Plant Operations
 T. Taylor, Director, Nuclear Engineering & Projects

ITEMS OPENED, CLOSED, AND DISCUSSEDOpened and Closed:

50-302/2000-02-01	NCV	Failure to Provide Positive Controls for Workers in a High Radiation Area as Required by Technical Specification 5.8.1.c. (2OS1.2)
-------------------	-----	--

Closed:

TI 2515/144	Performance Indicator Data Collecting and Reporting Process Review (4OA5.1)
-------------	---

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none">● Initiating Events● Mitigating Systems● Barrier Integrity● Emergency Preparedness	<ul style="list-style-type: none">● Occupational● Public	<ul style="list-style-type: none">● Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance

(as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.